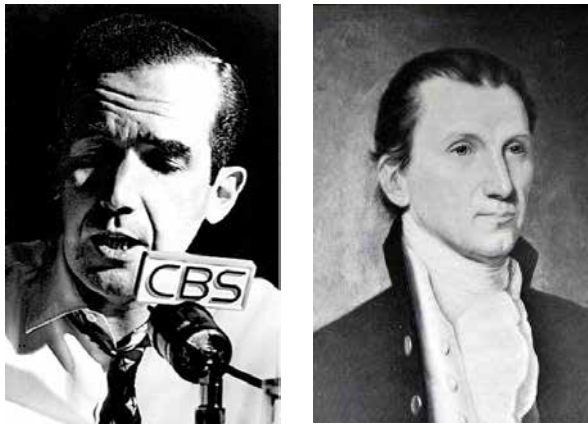




**ARTISTIC LIGHTING COMMISSIONED BY THE DC
COMMISSION ON THE ARTS & HUMANITIES.**

Light a Sound©2014 Duilio Passariello

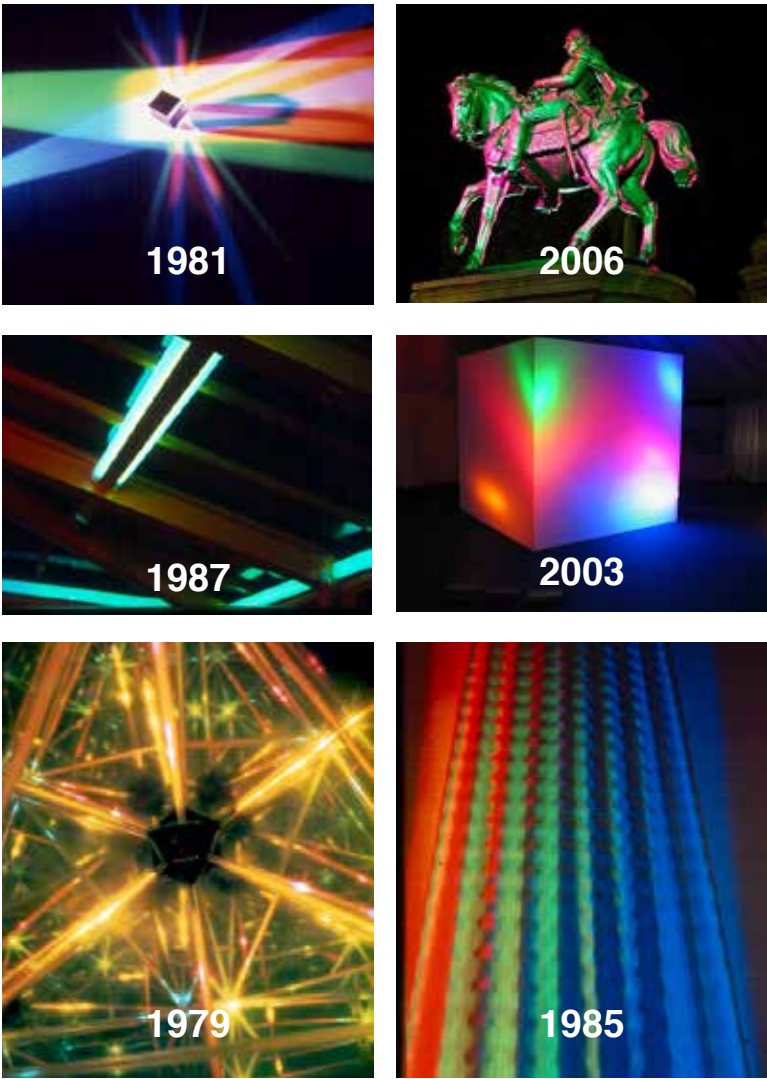


Introduction

The legacy of Edward Murrow as a journalist is the source of inspiration for this work of Lighting Art. His voice, recorded on radio and on television, will be used as input to generate lighting patterns in the lanterns in Murrow and in the water fountain in Monroe.

Audio archives will trigger modifications of a constant loop, played by the lighting devices used throughout the two parks and used as the base theme. The frequency and the pitch of the voice will be used as values, to modify a slow “rainbow effect” related to the passing of the seasons. An electronic device will capture the different audio recordings, driving the changes in the lighting loop of the colors of the spectrum.

Monroe Park and Murrow Park will both be synchronized, by using the same data at the same time to create the impression that they are linked together. In Monroe, the Waterfall will create a set of geometrical patterns produced by the mesh and the lighting occurring inside, as the water flows and the observers move around. On Murrow the transformations will alter the perception of the lanterns to infuse them with internal life. The lighting produce will color the surrounding space.



Art Work

Lighting is a very peculiar artistic medium that imposes specific limitations and allows extraordinary possibilities. To make Art with Lighting requires inspiration, culture and a deep understanding of its physical principles and the physiology of vision. I started using lighting as an artistic medium with kaleidoscopes I built in 1979. Later in 1981 I worked with laser beams using water to materialize them. By 1985 I started to work with color addition using 3 neon tubes. By 1987 I had created the first RGB-DMX computer controlled system for a bar in New York. In 2003 I used translucent supports to project beams of RGB light and since 2006, I have incorporated this work to the lighting I design for public lighting. Throughout all these years I have been able to incorporate these ideas to my practice as a lighting designer. This commission for the parks in Washington DC is a continuation of this creative process with lighting.



Initial review - Murrow Park

My concept for the lanterns of Murrow Park uses the canisters to achieve a dramatic and powerful effect that transcends simple illumination and differs from the suggestions offered in the outline of the competition.

Limiting the color to the hat and neck will not achieve the desired effect. The intense white light will overshadow all other lighting. The illustration shows this damaging effect. Our proposal uses the entire luminous surface of the Saratoga's to produce aesthetic value without sacrificing the visibility of the pavement.

The very slow color change featured by these fixtures will be altered by the voice of the journalist recorded from his radio and TV programs.



Top cone illumination will be very reduced in scope and hardly visible from Pennsylvania Avenue.

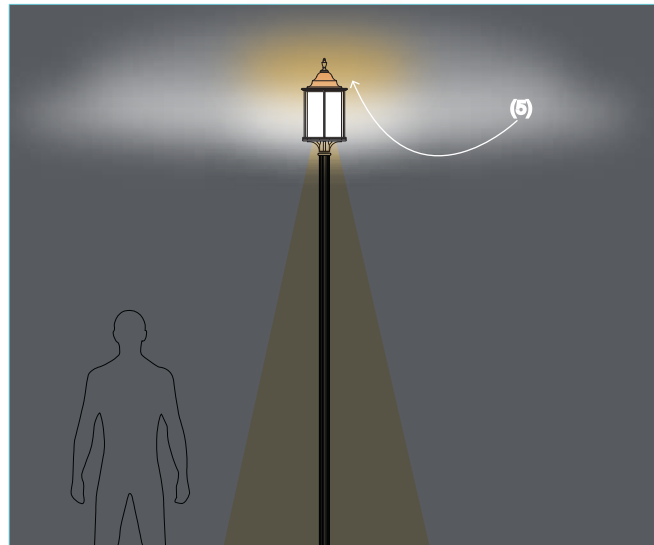
The canister will overshadow any other lighting effect from close and from a distance. There are other means to illuminate the pathway.

Pole will be greatly diminish the colored lighting projected except for the pavement.

Edward Murrow Park

Illustration of the lighting effect - Murrow Park

Murrow Park - Light a Sound by Duilio Passariello © 2014



CHROMATIC ILLUMINANCE

The lighting emitted by this source illuminates the environment (2) with the color of the source, creating a chromatic atmosphere that is visible everywhere.

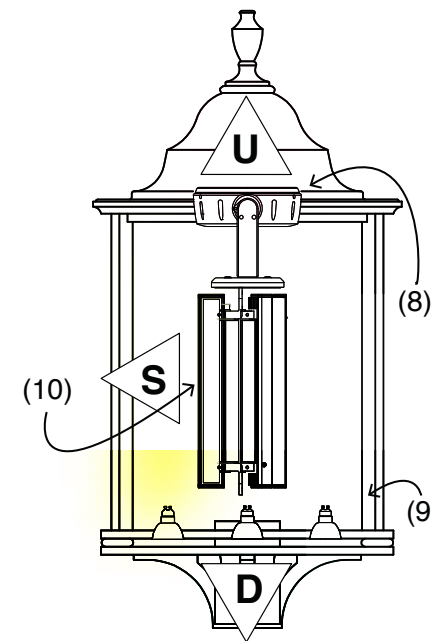
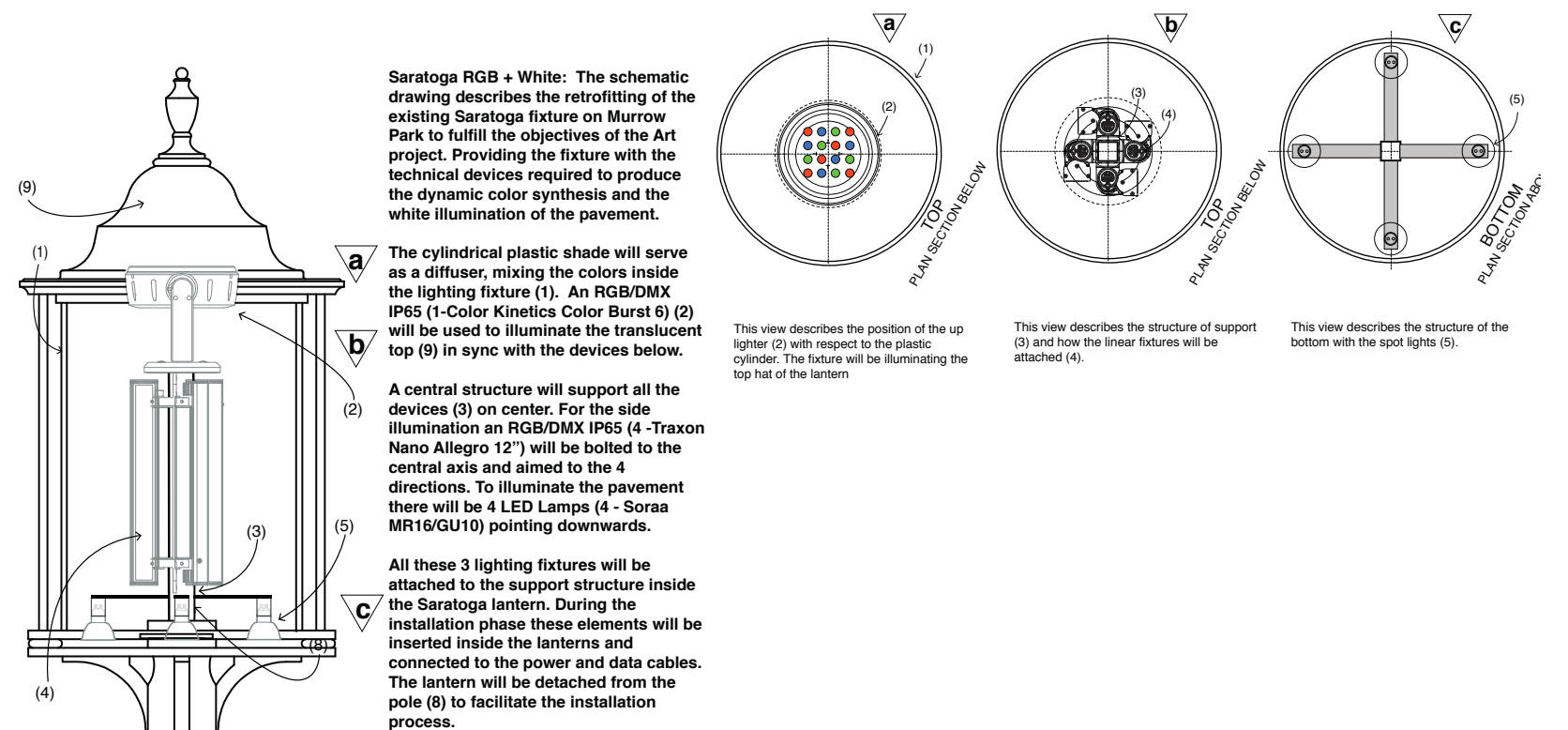
The addition of a source of white lighting will illuminate the pavement (3).

The colored source, being so reduced in size and output has little impact in the environment (5).

CHROMATIC LUMINANCE

The totality of the lantern (1) is perceived as luminous element of color. If the lantern is divided the chromatic value will be diminished to levels that will render the intervention almost invisible.

White luminance (4) will bleach any color projected from the top hat of the lantern.



The illustration to the left helps understand the scope of the use of the entire surface of the cylinder as a medium for the expression of color lighting and its impact on the perception of the park by night. The number 8 point to the spot projector RGB/LED, the number 9 to the lower white light LED and the number 10 to the linear projectors.

This view describes the lighting fixture. The letter **U** represents upwards projection produced by the top RGB/LED lighting fixture, that will tint the top cone producing a high color saturation. The color projected is controlled by the program. The **S** represents side-wise projection produced by the side RGB/LED lighting fixture, that will illuminate the canister with white or colored light. The letter **D** represents downward projection in the vicinity of the pole's base. This is the functional white light intended to illuminate the pavement of the Murrow Park to create a visual reference and a visible path.

Murrow's Saratoga lanterns by night photographed during visit to the site. The effect is overwhelming.



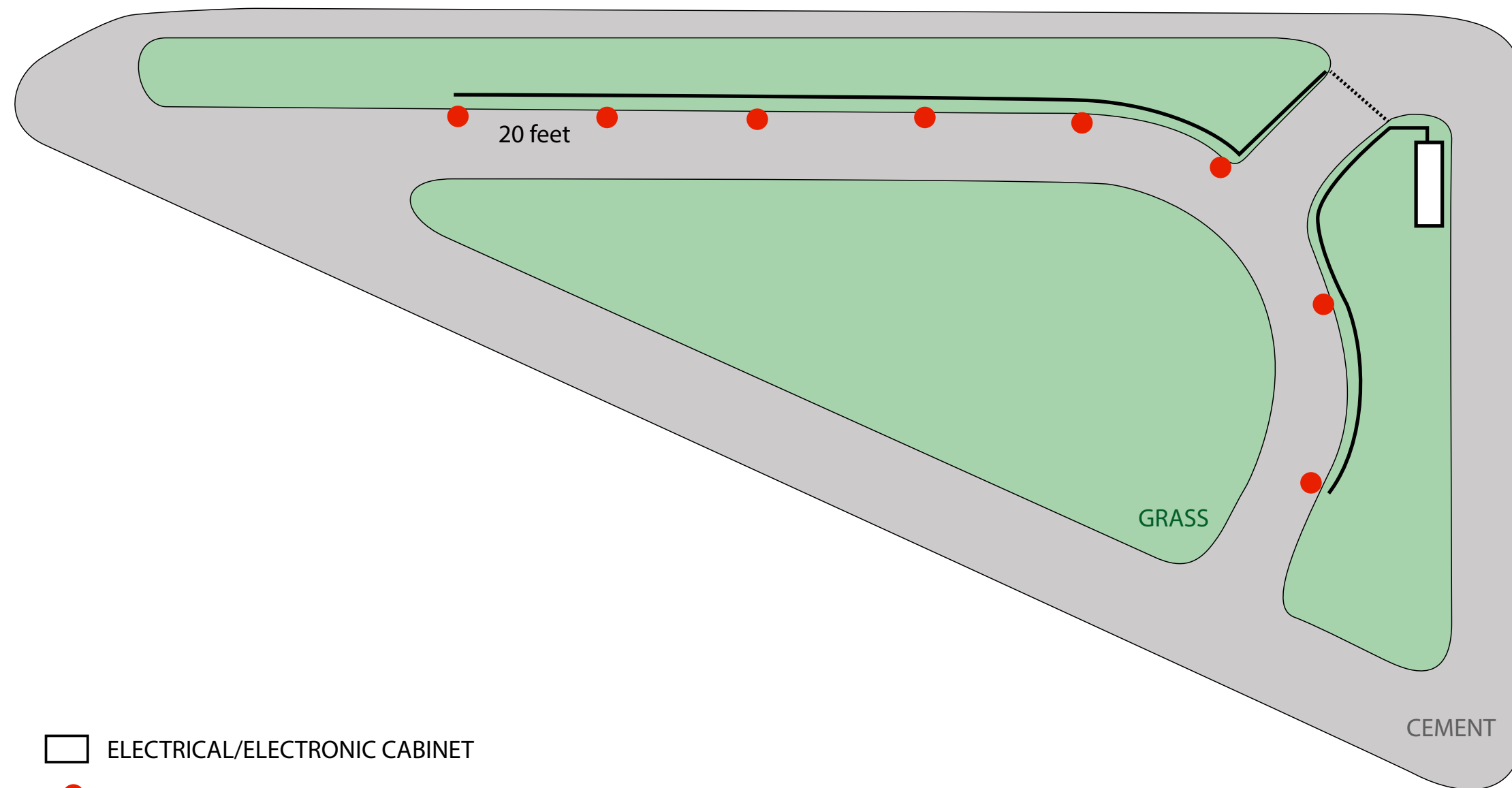
Murrow Park - Light a Sound by Duilio Passariello © 2014







Murrow Park - Light a Sound by Duilio Passariello © 2014



Murrow Park - Light a Sound by Duilio Passariello © 2014



-  ELECTRICAL/ELECTRONIC CABINET
-  SARASOTA LED-WHITE/RGB -TRAXON NANO & COLOR BURST
-  CONDUIT DMX/POWER LINE/
-  TRENCH ON CEMENT

MURROW PARK SCHEMATIC DRAWING
By Duilio Passariello © 2014



Initial Review - Monroe Park

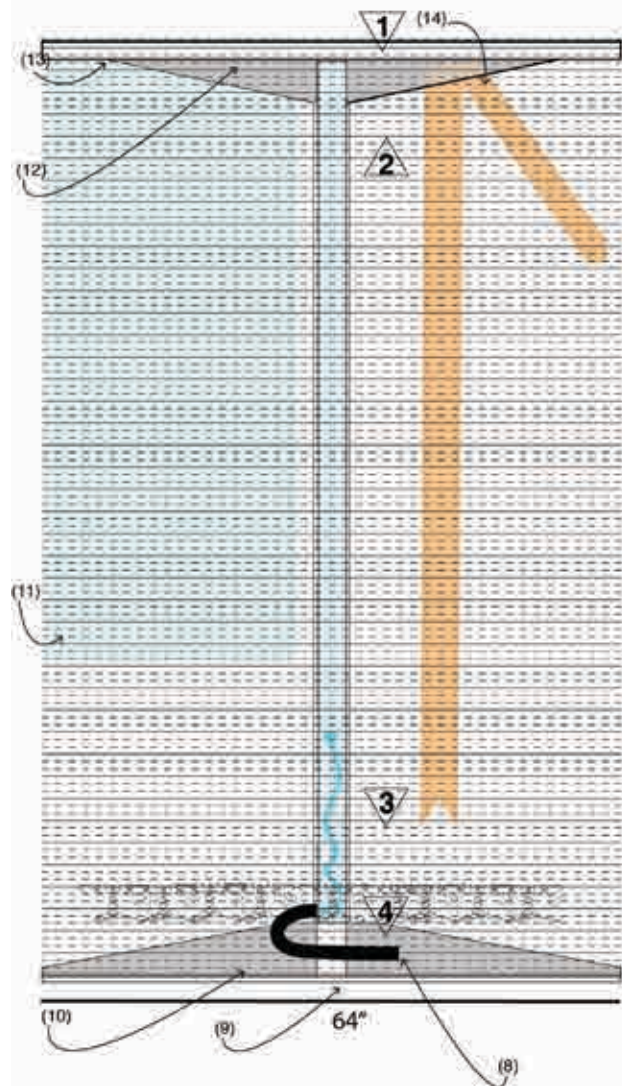
With the same intention as for the Murrow lanterns, I took the liberty to modify the objectives of the project in Monroe Park from what was requested by the commission to what I consider, as an lighting artist to be the best solution to this site. My objective is always to render these parks more interesting using lighting features that aim to produce an attractive and interactive work of lighting art. The creation of a waterfall is to take advantage of the opportunity to move beyond the common and create a unique experience. In my view colored jets of water in a circular basin of this size will not create much of interest and participation in an area that is not residential. In addition, there will be extended periods of time during which the temperature will freeze, exposing an empty basin to vandalism specially for the expensive LED lighting fixtures which could be disconnected and stolen easily or covered with ugly metal cages.

My proposal for the Monroe Park seeks to create a new and intriguing visual experience, by elegantly incorporating color and optical effects to the site, adjusting its dimensions to the landscape and adapting its form to withstand the harsh conditions of outdoor and minimize the risks of vandalism. A singular waterfall, using a triangular prism of stainless steel mesh hand woven with a triangular pattern of steel wires. The three curtains intended to produce several kinds of visual effects by day and by night according to the luminous relationship between the inside and the outside. When water flows, it will transform the curtain into a colorful screen. Along the triangles the liquid will reflect light and color in all directions. Through the mesh it will be possible to see through, and see the lighting reflected on the flat stainless wires as a filigrain. The Moiré pattern produced by the angular shift, when viewed from any viewpoint will create a dynamic effect further enhanced by the nature of triangular prisms. During the night the internal face of the stainless mesh will be bright, where as the exterior surface will be dark, but the opposite will occur by day. As in Murrow, the color shifts will occur as the base pattern of colors will be altered by the signals produced by the surrounding sounds picked-up by the microphone.



James Monroe Park





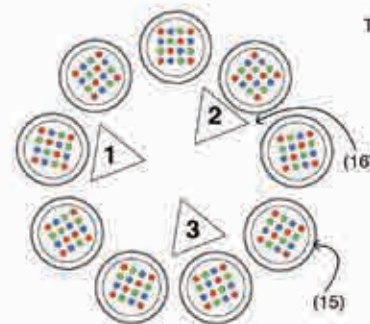
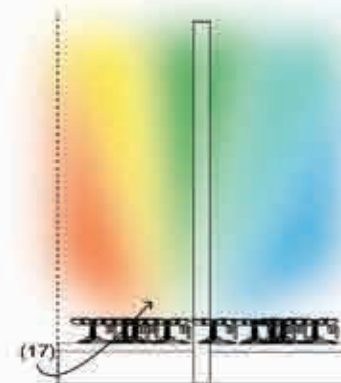
An external pump sends water up the main shaft (8) into the top reservoir. The fixing plate (9) is attached to the floor by a foundation. Water will come down the 316 stainless mesh curtain wall. A series of triangular reinforcements (10) add strength to the reservoir. The flow of water will travel along the wires (11). The top reservoir storing the water (12) will continually feed the mesh by overflowing uniformly. The curtain will be welded to the top (13) and bolted to the bottom plate for cleaning and servicing. The reflective top above will redirect the light downwards to multiply the effect (14).

Dimensions: 96" high and 64" wide on each side of the equilateral triangular prism. Structural material made of welded 316 Stainless steel with one pipe and several plates. Curtain walls made of 316 Stainless steel mesh welded to the top tray and bolted to the lower base to allow servicing of the light fixtures. Entire waterfall made to be vandal proof and hard to climb.

Approximated weight 400 lbs.

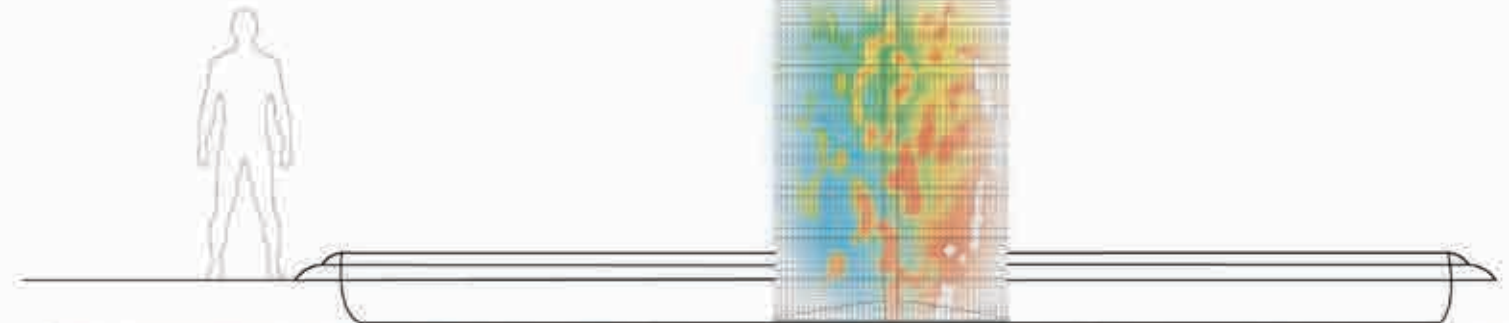


(11) 316 stainless steel triangular mesh 0.94 lb/sf



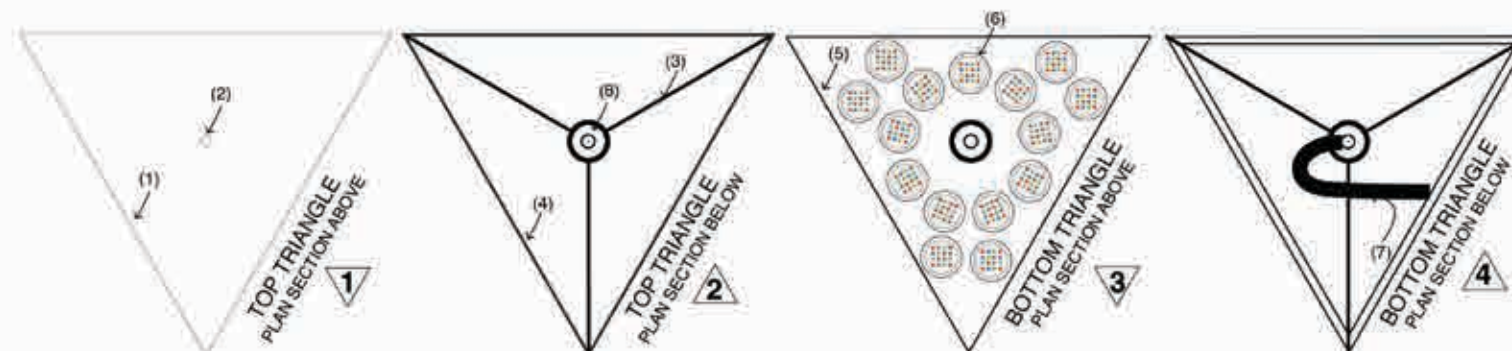
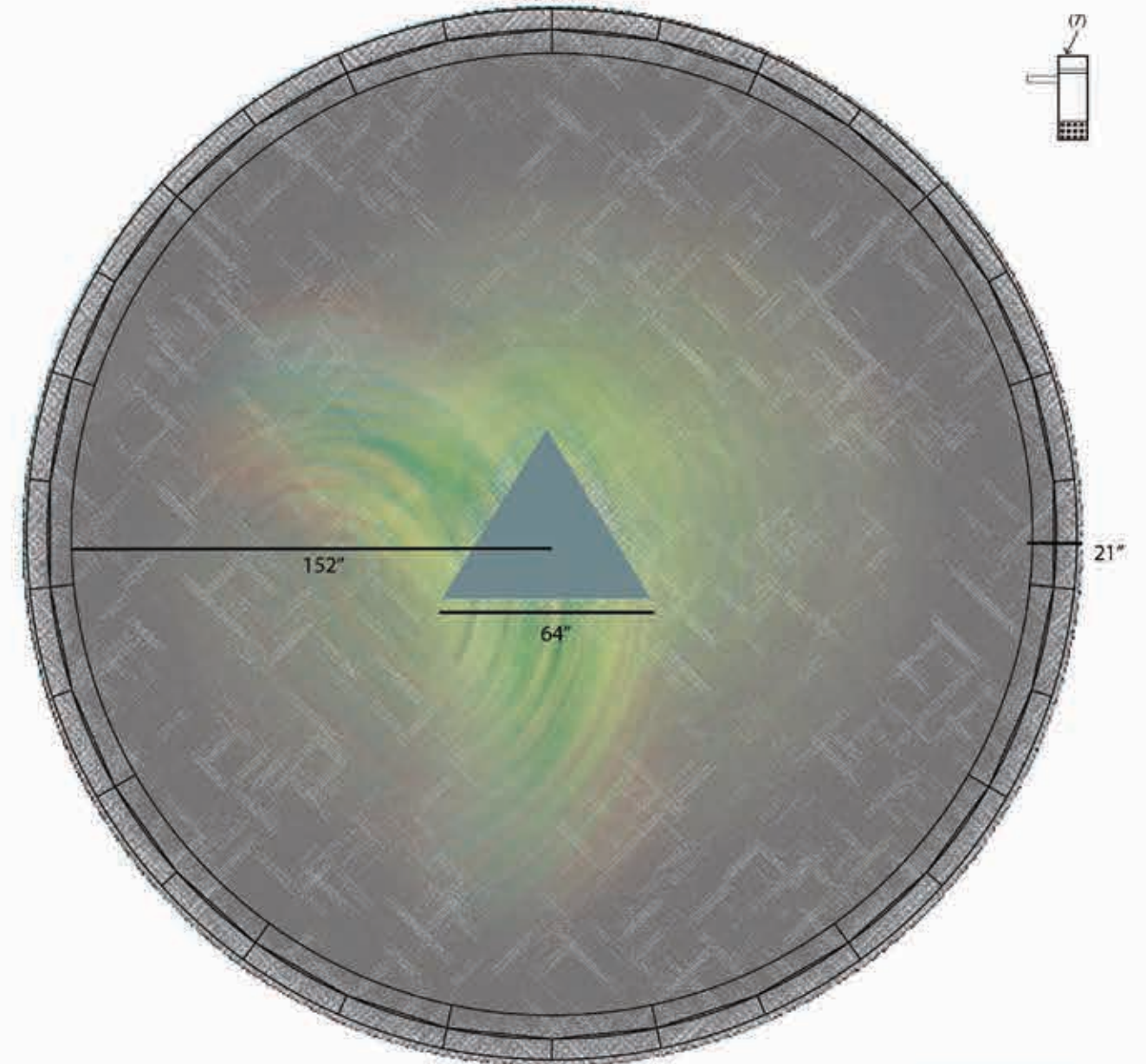
This view describes the position of the lighting fixtures (15) in the bottom part of the prism. Each one of the groups, 1, 2 and 3 will be tilted in order to illuminate the opposite curtain. Inside each group the central device will be aimed to the upper part of the curtain and the four lateral fixtures will be directed towards an opposing side creating a diagonal aiming disposition of beams. This technique will assure the uniform spread of the lighting throughout the prism. The elevation schematic drawing represents the use of colors to create dramatic effects. Two of the lighting fixtures will produce the base sequence whereas the 3rd device will create the lighting effects related to the sounds.

Elevation view



This view illustrates the intent of creating a colorful object with a skin made of flowing water located at the center of the basin at Monroe Park. Using water and lighting as the medium to producing a vast array of visual transformations that will depend on factors like the sounds produced in Murrow Park and the wind to produce random visual transformations to those nearby.

- Top view -



This view describes the shape of the top lid of the monolith protecting the reservoir from leaves and other residues, it also regulates the water flow. It will be bolted to the top triangle.

This view describes the reservoir of the top element of the prism, visible is the central tube connecting the base to the top (2) also the lateral ribs (3) designed to increase the stability and the strength of this reservoir. The mesh will be welded to the border to allow water to percolate (4).

This view describes the structure of the bottom element of the prism which serves as support for the light fixtures (5). An array of 15 LED-RGB/DMX (6) will be used to illuminate upwards. The cables will be connected to a power devices placed outside the basin.

This view describes the structure of the bottom element of the prism, the hose will be connected to the pump placed outside the basin (7).

Waterfall - Monroe Park

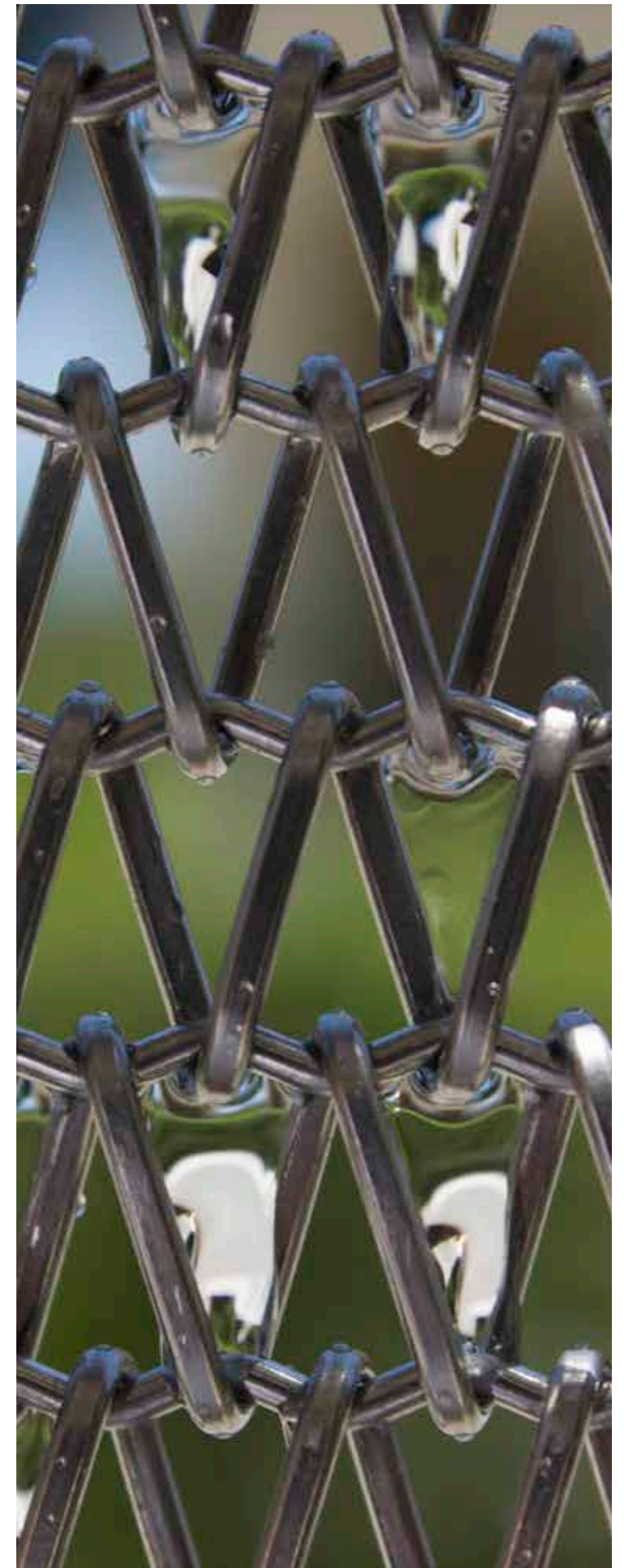
The screen used for this project are woven by hand with Stainless steel metal mesh by a factory in Pennsylvania. These curtains are used to create waterfalls for commercial applications (photo to the right). Water flows downwards following the pattern of the mesh. The waterfall will use a thin film of water that adheres to the mesh to create optical effects.

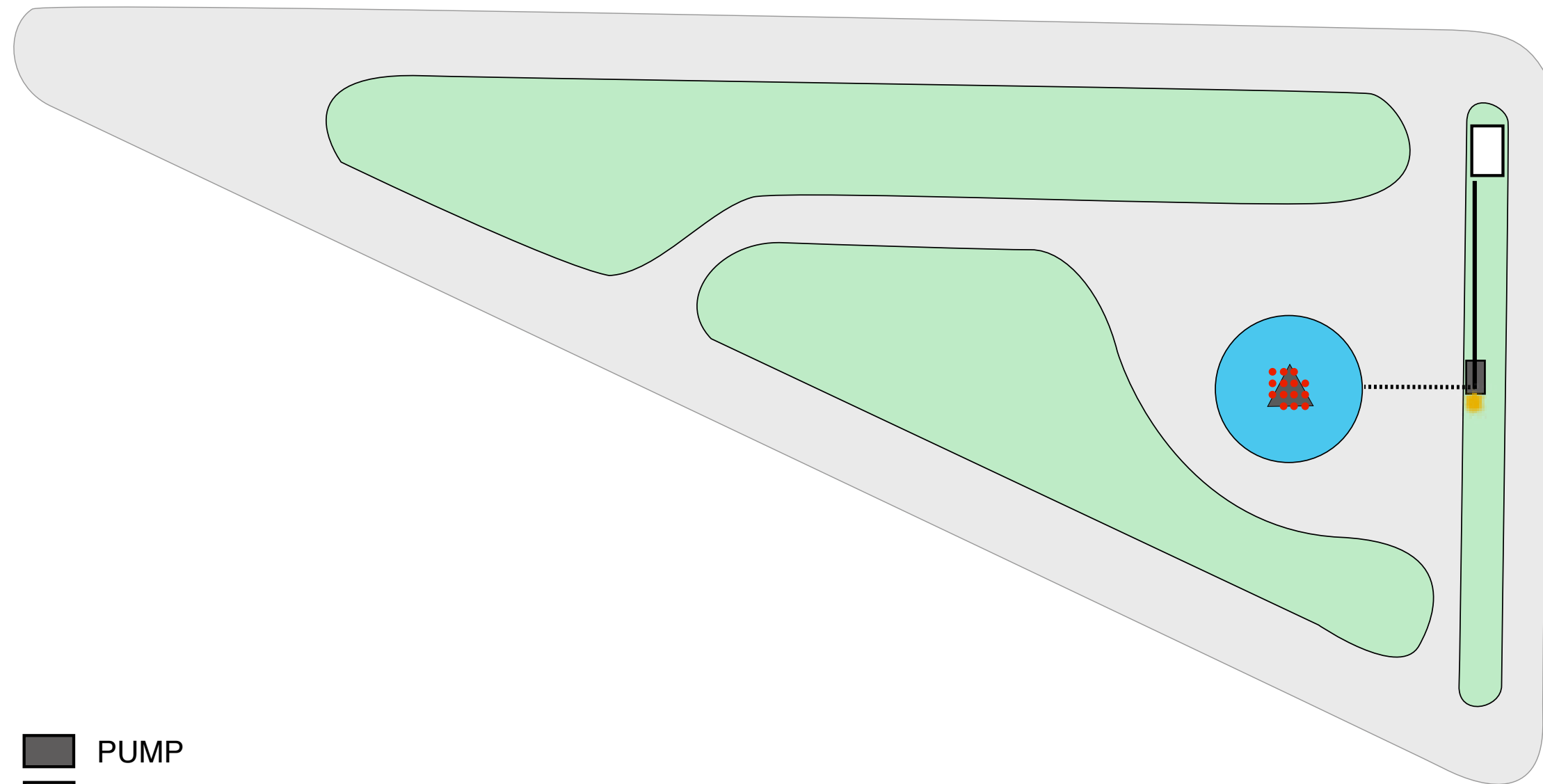
The stainless fabric allows water to flow in a continued and controlled way, by guiding it down along the plane. The lighting equipment will be placed inside the prism created by the 3 curtains, each tilted with a consecutive angle of 60 degrees making an enclosed equilateral triangular prism of great strength and beauty.







The waterfall itself will be perceived as a filigrain, dark in the outside and bright in the inside; the lighting will be seen as patches of color or a continuum that washes

the entire surface, and the thin film of water will constantly change.

The vertical planes of the waterfall will be supported by a structure made of stainless steel, consisting of a reinforced base, a central tube delivering the water up and supporting the entire object and a shallow reservoir at the top. Color, wires, the fluidity of water and the patterns of lighting will combine to create a unique and intriguing experience of lighting art.





-  PUMP
-  ELECTRICAL/ELECTRONIC CABINET
-  7 PS 60
-  15 C-SPLASH
-  CONDUIT DMX/POWER LINE/
-  TRENCH ON CEMENT

MONROE PARK SCHEMATIC DRAWING
Duilio Passariello © 2014



The Visual Connection

One of the most important goals of this Art project is to produce a visual connection between the 2 Parks. By using the same visual effects it will be possible to create a similar effect and an homogeneous perception of this part of Pennsylvania Avenue as people will stroll along.

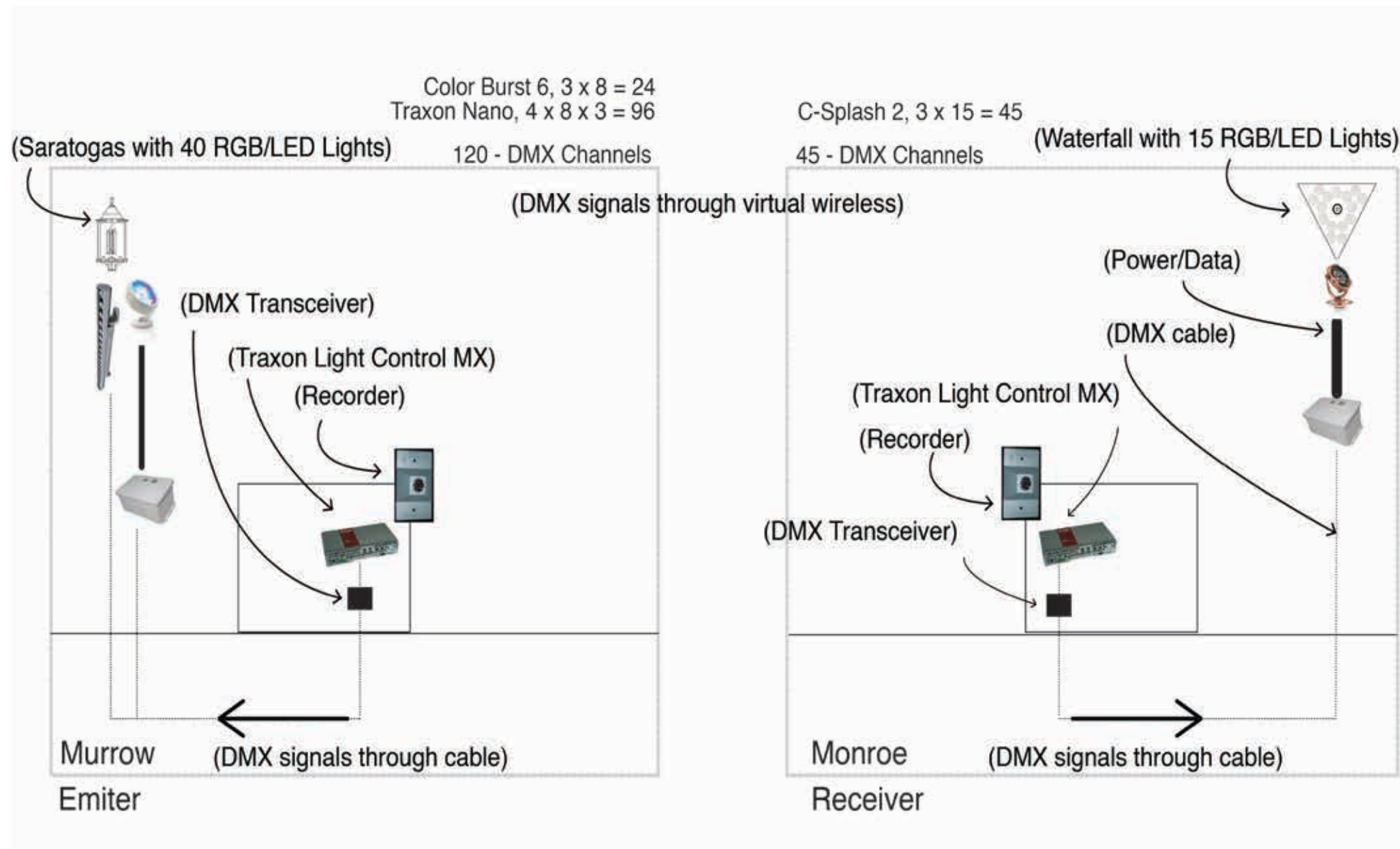
The 3 points in the illustration, A, B and C show different points of view of typical pedestrians as they stroll along the avenue, by night, passing from one point to the other in their translation.

On both parks there will be the same infrastructure and the same audio input to generate the lighting transformation regardless of the container of lighting, the lanterns or the waterfall will have similar chromatic transformations.

For a pedestrians walking along Pennsylvania Avenue the two Parks will have a resemblance that will become evident as a person in point A will reach point C.

In time those strolling along will be able to understand that there is a link between the two areas, and that what is occurring in one park is also happening in the other.

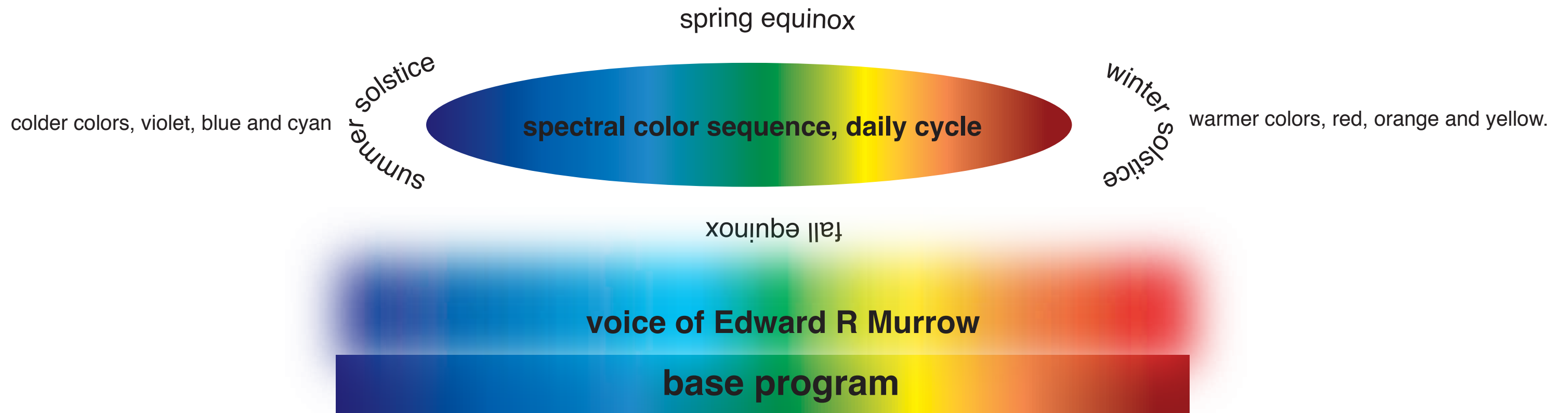
In a zone of Washington overwhelm illuminated by yellow lighting sources, the presence of colored lighting will become a different type of visual event. Specially since the color changes will not be predictable as in the vast majority of the color installations in the city of Washington, its normal to see what has been described as the “rainbow effect” with a succession of colors that get repeated endlessly over the night.



The Connection

The audio signal produced by the radio and television recordings of the programs of Mr Edward R Murrow, will be transformed into lighting signals, using a lighting system using an electronic communication protocol call, DMX, developed by the USITT for controlling scenic lighting. The changes of frequency will be triggering different responses in the intensity and the hue of the lighting produced in the lanterns and in the waterfall. A lighting program will be able to trans-duce the impulses received with the audio into visible patterns according a preselected set of values.

The audio impulses will be traduced into lighting data and sent, via cables to the different lighting fixtures in Murrow Park. The same situation will occur in Monroe, with both parks reacting in the same way to the same audio input in order to recreate, virtually the effects of the broadcasting of electromagnetic waves through the air. The recordings used to input data to the system and change the lighting will use all the recorded programs that are accessible to the general public. These recordings will be digitalized (if not available in this format) and used to produce the modulations to alter the base programmed lighting effect.



Color Cycles and Signal Alterations

The lighting program is based on a cyclical transformation that passes through all the color of the spectrum. This slow chromatic evolution will be altered by other lighting effects trigger by the modulation of the voice of recordings of Radio and TV shows of Edward R Murrow.

These expressions of color will be produced by the additive properties issued by the combination of Green, Blue and Red LED lighting sources. The range of colors will go from Violet to Red, passing by all the hues of the visual spectrum.


The color cycles will take several hours to complete, depending on the length of the night of each day, as it changes through the season of the year. Nights are longer in winter and shorter in summer following the celestial time, it takes for the Earth to complete its rotation around the Sun and the declination of earth's rotational axis; this celestial time will determine how lighting will change ever night.

During the earth translation towards the summer solstice, the hue of the colors produced by the lighting devices will be more "cold", and the cycle, will spend more time in hues like violet, blue and cyan. Once this is completed


The opposite will occur for the winter solstice when the cycle will be "hot", and the lighting devices will spend more time in the hues, yellow, orange and red. During the time of the year related to the equinoxes, the cycles will take the same time in each color group, cold and hot, and the entire transition will take 182 days.

The use of slow transitions is important in public spaces, the rhythm, being almost imperceptible can produce valuable sensual experiences. By happening at a slow pace, these transformations occupy a visual realm that is close to natural events like dusk and sunset, phenomenons that take time to accomplish perceptible color transformations. In the case of our project they will help creating an atmosphere of relaxation and tranquility.


On top of this base program there will be the alterations produced by the audio signals introduced by the modulation of the voice capture from the recordings of Edward R Murrow. These alterations will create the illusion the lighting is responding to some sort of stimulation created by the environment. Their appearance will give a sense of the lighting being alive.




Philips Color Burst
Quantity: 8
Location: inside lanterns
Aim: top cones
Park: Murrow
Type: RGB/DMX-LED




Philips C-Splash2
Quantity: 15
Location: inside monolith
Aim: top reservoir
Park: Monroe
Type: RGB/DMX-LED




Traxon Nano Allegro
Quantity: 32
Location: inside lanterns
Aim: cylinder
Park: Murrow
Type: RGB/DMX-LED



Traxon Light Control MX
Quantity: 2
Location: inside electrical cabinet
Aim: DMX control of parks
Park: Murrow
Type: DMX with MIDI input



Philips PDS-60
Quantity: 15
Location: inground
Aim: power supply
Park: Monroe & Murrow
Type: DMX



Soraa Premium 2
Quantity: 32
Location: Saratoga
Aim: pavement
Park: Murrow
Type: 80 CRI/10°/480Lm
3000°K GU10/110V

Installation plan - Murrow Park

Schematic plan with features to put in place for the artistic illumination of the park.

-Existing electrical cabinet to be refurbished and reused for the project considering the electronic equipment it will be installed inside. Humidity and temperature should be addressed accordingly.

-An outdoor microphone will be attached to the cabinet, by creating a box to be bolted. The cable with the audio signal will be introduced inside and connected to the lighting controller via MiDi or USB cable.

-The Sarasota lighting fixtures will be retrofitted using a metal frame which will serve as support for the RGB/LED equipment.

-New cables and conduits are required in order to connect the LED equipment inside the Saratogas which include power (110V) and data or both in the case of the Philips fixture.

-New electric installation where required

Installation recommendations

-The existing Saratoga lanterns will need additional internal infrastructure to fit the new equipment required.

-LED power supply to be installed at the base of the poles.

-Place conduit outside the pavement

-Saratoga fixtures should be cleaned every 6 months to avoid the accumulation of dirt and a eduction in the lighting output.

-The antenna should be placed in the grass using the recommended practice to avoid vandalism.

Installation plan - Monroe Park

Schematic plan with features to put in place for the artistic illumination of the park.

-Use existing electrical cabinet, refurbished.

-Pump to be placed inside a compartment

-The converter for lighting fixtures will be installed underground.

-Lighting fixtures attached to the waterfall base

-New electric installation is required where necessary.

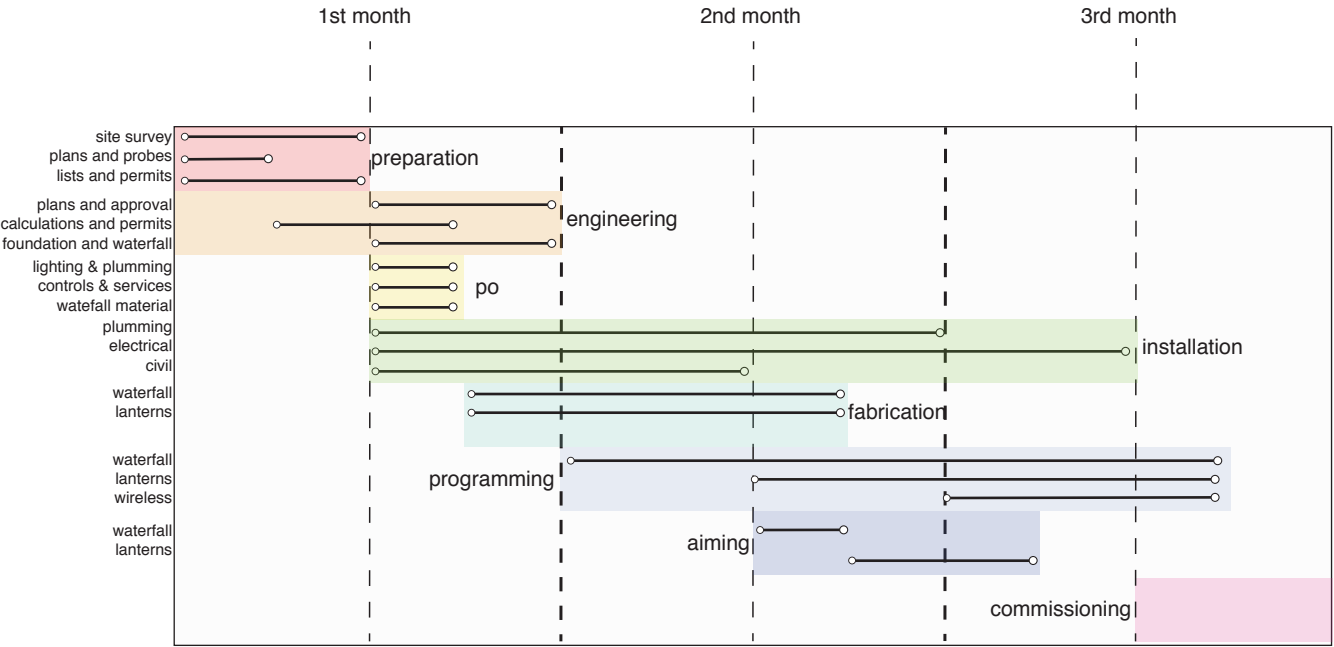
Electrical and plumbing installed to deliver water in and out of the basin using a well sealed conduit to prevent leakage.

Installation recommendations

- The area of the fountain where the monolith will be installed must be perfectly flat to insure an equal distribution of the water flow.

- The screws used to bolt the monolith to the floor must be prepared in advance for the installation of the metal base.

- The electrical installation should use new conduits adapted to the electrical code. The grass next to the poles should be used to make the necessary trenches avoiding the need to cut.



Murrow Park task list

- 1. Field study to measure the lanterns and determine existing conditions of the electrical equipment in place.
- 2. Mock up of a lantern
- 3. Submission of plans to the different parties involved in the project
- 4. Certification for the commencement of the works and preparation of the site
- 5. PO for the material needed, cables, boxes, controls, lighting fixtures and parts
- 6. Trenches and conduits for the entire installation including electricity and data cables.
- 7. Preparation of the electrical cabinet to receive the electronic equipment.
- 8. Prepartion of the underground installation devices
- 9. Preparation of skeletons for light fixtures inside the Saratoga Lanterns
- 10. Installation of fixtures and power and data connection
- 11. Tests with programmer for controlling device
- 12. Tests with data coordination with Traxon and Philips reps
- 13. General presentation to the commission
- 14. Fine tunning of the lighting effect
- 15. Sealing of the fixtures
- 16. Commissioning

Murrow Park budget \$ 80,000.00

1. Lighting equipment -	30,000.00
2. Fabrication	3,000.00
3. Installation electrical	21,800.00
4. Travel - Accommodation	4,000.00
5. Contingency (5%)	4,000.00
6. Photography	2,000.00
7. Programming & Consultant	3,200.00
8. Artist fee	10,000.00
9. Administrative costs	1,000.00
10. Insurances	1,000.00

Monroe Park task list

- 1. Field study to measure the lanterns and determine existing conditions of the electrical equipment in place.
- 2. Engineering plan of the structure and the foundation
- 3. Submission of plans to the different parties involved in the project
- 4. Certification for the commencement of the works and preparation of the site
- 5. PO for the material needed, cables, boxes, controls, lighting fixtures and parts
- 6. Trenches and conduits for the entire installation including electricity and data cables.
- 7. Preparation of the fountain basin foundation and the compartment for the pump
- 8. Electrical cabinet, conduits & site mock-up
- 8. Fabrication of the waterfall
- 9. Preparation of conduits for basin including electrical and water
- 10. Boxes and conduits
- 11. Installation of fixtures and power and data connection
- 12. Tests without data
- 13. Tests with data and water
- 14. General presentation to the commission
- 15. Fine tunning of the lighting and the water effect
- 16. Bolting the waterfall
- 17. Commissioning

Monroe Park budget \$ 170,000.00

1. Lighting equipment -	16,000.00
2. Fabrication	45,000.00
3. Installation fountain	43,300.00
4. Travel - Accommodation	4,000.00
5. Contingency (5%)	8,500.00
6. Photography	3,000.00
7. Programming	1,000.00
8. Artist fee	15,000.00
9. Administrative costs	1,000.00
10. Engineering	3,500.00
11. Installation electrical	27,000.00
12. Permits	500.00
13. Insurances	2,000.00